A number of GP factors interacted with patient predictors to get Zostavax.

Conclusion: There is a high degree of awareness of the impact of shingles and reasonable likelihood of vaccine uptake. GP recommendation is likely to be the key influence on patients getting the zoster vaccine.

Strategies to enhance GP recommendation of the Zostavax will have a strong influence on Zostavax uptake

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Yellow fever vaccination immune responses are measurable up to 38 years after vaccination

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Background: In May 2013, the WHO sage announced a yellow fever vaccination policy change stating that revaccination of healthy individuals every 10 years was no longer necessary. In our opinion, this statement was based on scarce research and we therefore sought for a more solid base of evidence for this guideline.

The aim of this study is to assess antibody presence and yellow fever (YF)-specific T cell responses in healthy individuals vaccinated more than 10 years ago.

Methods & Materials: From January 2012 to November 2013, 75 healthy individuals vaccinated more than 10 years ago and 30 individuals vaccinated less than 10 years ago were included in this study. Virus neutralizing antibodies were studied using a Plaque Reduction Neutralization Test. The presence and phenotypic profile of YF-specific CD8 + T cells was characterised by tetramer staining. YF-specific CD8 + T cell responses were assessed after stimulation with tetramer specific peptides.

Results: Neutralizing antibodies and YF specific CD8 + T cells were present in comparable percentages of long-term (up to 38 years after vaccination) and short-term vaccinees. In two HLA A2 + vaccinees vaccinated 12 and 15 years ago, (0.6-3.0% of CD8 + T cells) were identified and shown to have both classical (CD45RAdimCD27 +) and effector memory phenotypes (CD45RAhiCD27). In one HLA B27 + individual vaccinated 28 years ago, yellow fever specific T cells were identified after peptide stimulation.

Conclusion: Antibodies were present up to 38 years following vaccination. Functional YF-specific T cells with various phenotypes were present up to 28 years after vaccination. The 17D yellow fever vaccine induces a long term humoral and cellular immune response, and our results provide a more solid base of evidence for the WHO guideline change.

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New vaccine Strategies against *Nesisseria meningitidis* serogroup X

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Background: Most meningococcal disease in Africa is caused by serogroups A and W of *N. meningitidis*. Recently, new cases of meningitis caused by *N. meningitidis* serogroup X have been reported in countries from "meningitis belt". No vaccines have been developed against this serogroup. The aim of this work is to show the different R&D strategies under evaluation at Finlay Institute against the pathogen.

Methods & Materials: Experimental lots of outer membrane vesicles (OMVx) were obtained by deoxycholate extraction method from *N. meningitidis* serogroup X BuFa 2/97 strain. Physicochemical characterization was carried out to determine the size, morphology and the main antigens in vesicles. Secondly, capsular polysaccharide X (PsX) was obtained by phenol free process and characterized by HPLC, HPAEC-PAD and other analytical techniques. A combined formulation of OMVx plus PsX adsorbed to aluminum hydroxide (OMVx/AL) was developed and evaluated in mice models. Finally, conjugates of PsX to diphteria or tetanus toxoid were obtained. The antigen specific IgG responses induced by these formulations to polysaccharides or OMVx were evaluated by ELISA, and serum bactericidal assay (SBA).

Results: OMVx size was between 90-120 nm and OpcA, PorA and RmpM protein were identified. Lots from PsX were obtained by high scale process (100 L). PsX size was estimated in 500 g/mol L and Kd in 0.5.OMVx/Al induced high specific anti-OMVx antibodies response in sera with bactericidal activity. OMVx with PsX also contributes to increase SBA in the group of mice immunized with this formulation as well as the induction of anti PsX antibodies. PsX conjugates also induced high specific titers and SBA.

Conclusion: Purification of capsular polysaccharide, combination of OMVx with the PsX as well as the formulation of multivalent OMV vaccines or conjugates from different meningococcal serogroups is the focus of our current work.

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